

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF A DEVICE

No.: NR-8199-D-801-E      DATE: May 28, 2008      PAGE 1 of 3  
(Supersedes NR-1199-D-101-E)

DEVICE TYPE: Gas Detector

MODELS: 5000, 5100, 5600, 5700, STR0000, and  
EnviroSecure IMS 7100

DISTRIBUTOR: Draeger Safety, Inc.  
Gas Detection Systems  
505 Julie Rivers, Suite 150  
Sugarland, TX 77478

MANUFACTURER: Dräger Safety AG & Co. KGaA  
Volmerstrabe 7B  
12489 Berlin  
Germany

SEALED SOURCE DESIGNATION: Model BH 3.21  
  
Ritverc GmbH  
2-nd Murinsky Ave. 28, 194021  
St. Petersburg, Russia

<u>ISOTOPE:</u>	<u>MAXIMUM ACTIVITY</u>
Hydrogen-3	27 mCi (1 GBq)

LEAK TEST FREQUENCY: Not Required

PRINCIPAL USE: (N) Ion Generators, Chromatography

CUSTOM DEVICE: \_\_\_\_\_ Yes ☒ No

DESCRIPTION:

B-3

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The 5000, 5100, 5600, 5700, STR0000, and EnviroSecure IMS 7100 are gas and particulate detection devices utilizing an ion mobility spectrometer (IMS). The devices detect chemical agents, e.g., chemical warfare agents, toxic industrial compounds, airborne molecular compounds, in ambient air. The medium to be sampled flows through the drift region by means of a shutter grid. In the drift region an electric field is maintained and due to their mobility different ions arrive at a collector at the end of the drift cell at different times. These drift times are used for identification and concentration measurement.

The detectors differ in weight, the number of pumps and filters, and gas chromatographic column. Models 5000 and 5100 weigh 9 pounds (4.1 kg), have two pumps, and one filter. Models 5600 and 5700 weigh 10 pounds (4.5 kg), have 3 pumps, two filters, and gas chromatographic columns. The difference between the detections units is the compounds each device can detect. The housing of all units have a width of 7.5 inches (190 mm), length of 11.4 inches (290 mm), and height of 4.1 inches (105 mm). The only differences between the STR0000 and other models are the electronics and user interface system. There is no difference between the EnviroSecure IMS 7100 and the STR0000, the device was renamed to be distributed by the Isonics Corporation.

The detection unit contains one tritium source with a maximum activity of 27 mCi (1 GBq). The source consists of a stainless steel disc which is covered on one side with a layer of titanium, charged with tritium. The titanium layer is sealed with two protective top layers of silicone dioxide and aluminum or an aluminum/gold combination. The sources is mounted in an IMS cell constructed of stainless steel. The dimensions of the IMS cell are 4.1 inches (105 mm) in length, 1.6 inches (40 mm) in width, and 1.5 inches (38 mm) in height.

The working life of the device is 10 years.

DIAGRAMS:

See Attachment 1

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REFERENCES:

The following supporting documents for the Draeger Safety, Inc. gas detector are hereby incorporated by references and made a part of this registry document:

- Draeger Safety, Inc., application dates May 13, 2003, with enclosures thereto.
- Draeger Safety, Inc., letters dated October 27, 2003, and November 11, 2003, with enclosures thereto.
- Draeger Safety, Inc., letters dated February 27, 2006, and May 5, 2006, with enclosures thereto.
- Draeger Safety, Inc., letter dated September 19, 2006, and facsimile received on October 5, 2006, with enclosures thereto.
- Draeger Safety, Inc., letter dated May 8, 2008.

ISSUING AGENCY:

U.S. Nuclear Regulatory Commission

Date: May 28, 2008

Reviewer: /RA/  
Nima Ashkeboussi

Date: May 28, 2008

Concurrence: /RA/  
Ujagar S. Bhachu

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ATTACHMENT 1

(b)(4)



Detection Unit  
(See dimensions in text)